IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

(Attorney Docket No. 13945US02)

In the Application of:

Uri Elzur et al.

Serial No.: 10/652,327

Filed: August 29, 2003

For: SYSTEM AND METHOD FOR NETWORK INTERFACING IN A MULTIPLE NETWORK ENVIRONMENT

Examiner: Hoang, Hieu T.

Group Art Unit: 2452

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REPLY BRIEF

Mail Stop Appeal Brief – Patents
Commissioner for Patents
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Sir:

In accordance with 37 CFR 41.41, the Appellant submits this Reply Brief in response to the Examiner's Answer mailed on June 22, 2010 ("Examiner's Answer"), with a reply period through August 23, 2010. Claims 1-31 are pending in the present Application. The Appellant has responded to the Examiner in the Examiner's Answer, as found in the following Arguments section.

As may be verified in the Final Office Action (pages 2-18), dated August 13, 2009 ("Final Office Action"), claims 29-31 are rejected under 35 USC 101 for allegedly being directed to non-statutory subject matter. Claims 1-4, 15-20 and 23 are rejected under 35 USC 102(e) as anticipated by USP 6,226,680 ("Boucher"). Claims 10 and 11 are rejected under 35 USC 103(a) as being unpatentable over Boucher, as applied to claim 1 above, and further in view of USPP 2002/0198934 ("Kistler"). Claims 12-14 are rejected under 35 USC 103(a) as being unpatentable over Boucher, as applied to claim 1 above, and further in view of Microsoft Winsock Direct and Protocol Offload on SANs, 03/03/2001 ("Microsoft"). Claim 21 is rejected under 35 USC 103(a) as being unpatentable over Boucher, as applied to claim 18 above, and further in view of Official Notice ("ON"). Claim 22 is rejected under 35 USC 103(a) as being unpatentable over Boucher, as applied to claim 18 above, and further in view of USPP 2002/0041566 ("Yang"). Claims 5-8 and 24-28 are rejected under 35 USC 103(a) as being unpatentable over Boucher, as applied to claim 1 above, and further in view of USPP 2003/0046330 ("Hayes"). Claim 29-31 are rejected under 35 USC 103(a) as being unpatentable over Boucher, and further in view of Callaghan (NFS over RDMA) ("Callaghan").

To aid the Board in identifying corresponding arguments, the Appellant has used the same headings in the Argument section of this Reply Brief as the headings found in the Appellant's corresponding Brief on Appeal. The Brief on Appeal has a date of deposit of February 19, 2010.

STATUS OF THE CLAIMS

Claims 1-31 were finally rejected. Pending claims 1-31 are the subject of this appeal.

ARGUMENTS

I. Rejection to Claims 29-31 under 35 U.S.C. § 101

The Examiner's Answer (page 18) states the following:

> "Claims 29-31 are rejected under 35 U.S.C. 101 the claimed invention is directed to non-statutory subject matter. A driver executable on a computer system is non-statutory subject matter, since a driver executable on a computer system is just computer program codes and does not comprise the computer system or any hardware elements in that computer system. Applicant argues in the brief that the unified driver executes the program codes in the computer system; therefore, the unified driver is tied to a computer system, and is statutory. The examiner respectfully disagrees. The claimed subject matter is the unified driver, which is executable by a computer and does not include the computer itself, and is software per se, or non-statutory subject matter."

The Appellant stands by the arguments made in the corresponding section of the Brief on Appeal (*see* page 11). Namely, Applicant's claim 29 recites that the "**unified driver executes the program codes <u>in the computer system</u>**". In this regard, the driver program code is tied to at least a computer system, which becomes part of the functions in performing the recited steps by the computer system. Therefore, the Appellant maintains that the recited unified driver is statutory subject matter and is patentable. The Appellant respectfully requests that the rejection to claim 29 under 35 USC 101 be withdrawn. Likewise, claims 30-31 depend from claim 29, and are submitted to be also patentable. In regards to independent claims 1 and 11,

II-A. Independent Claims 1 and 18

The Appellant stands by the arguments made in the corresponding section of the Brief on Appeal. Namely, Boucher does not disclose or suggest at least the limitation of "processor operable to process a plurality of different types of network traffic, wherein **each** of said plurality **of <u>different types of network traffic corresponds to a different network protocol</u>**," as recited in the Appellant's claim 1.

In regards to independent claims 1 and 18, the Examiner's Answer (pages 18-19) states the following:

> "**Argument**: appellant has argued that prior art Boucher does not teach "the processor operable to process a plurality of different types of network traffic, wherein each of said plurality of different types of network traffic corresponds to a different network protocol."
>
> **Response**: It is respectfully submitted that Boucher does teach the limitation. Based on the claimed language, any processor that can process two different traffics that each is a different protocol can read on the claims. Boucher clearly teaches a processor coupled to the network connector (fig. 13, microprocessor 470, col. 16 line 62-col. 17 line 13), the processor being operable to process a plurality of different types of network traffic, wherein each of said plurality of different types of network traffic corresponds to a different network protocol (abstract, col. 3 lines 35-67, col. 6 lines 33-55, col. 13 lines 24-35, **the intelligent network interface card INIC's processor supports an fast path candidate traffics by identifying protocols such as TCP/IP or SPX/IPX and slow path traffics by identifying input packet protocol types, col. 14 lines 37-40, TCP, TTCP, SPX are fast path protocol traffic, col. 14, lines 51-53, traffic with non-accelerated protocols are processed conventionally using the slow path processing)**." (emphasis added)

The Examiner seems to allege that packets with headers denoting the TCP/IP or SPX/IPX protocol are exclusively processed as fast path candidates only, and will never be processed by the slow path (i.e., as a conventional protocol stack). Contrary to the Examiner's allegation, Boucher discloses that the slow path (i.e., conventional protocol stack) is used by all the packets with message header denoting TCP/IP and SPX/IPX protocols, in setting up a fast path connection. More specifically, the Examiner is referred to the following citation of Boucher (*see* Boucher col. 14, ll. 37-53):

> "...Conversely, **in receiving a TCP, TTCP, SPX or similar message packet from the network 210 to be used in setting up a fast-path connection**, **miniport driver 306 diverts that message packet to command driver 300 for processing. The driver 300 processes the message packet to create a context for that message**, with the driver 302 passing the context and command instructions back to the INIC 200 as a CCB for sending data of subsequent messages for the same connection along a fast-path. Hundreds of TCP, TTCP, SPX or similar CCB connections may be held indefinitely by the INIC, although a least recently used (LRU) algorithm is employed for the case when the INIC cache is full. **The driver 300 can also create a connection context for a TTCP request which is passed to the INIC 200 as a CCB, allowing fast-path transmission of a TTCP reply to the request**. A message having a protocol that is not accelerated can be processed conventionally by protocol stack 310."

Boucher, in the above citation, clearly discloses that the same slow path (i.e., common protocol stack 300), receives and processes the TCP, TTCP, SPX message packets (i.e., the alleged "fast path candidates packets") with headers denoting TCP/IP or SPX/IPX (i.e., the alleged "fast path protocol"), for processing to create a connection context. Furthermore, as pointed out by the Appellant in the

Brief on Appeal (*see* page 16), Boucher's Fig. 4D discloses an exceptional case, where a fast path candidate, is sent to the slow path 44 (i.e., protocol stack) for processing. In other words, Boucher does not disclose that the fast path and the slow path are "different types of network traffic", since packets of the same protocol types (i.e., the TCP/IP or SPX/IPX) can be processed by both the fast path and the slow path.

Accordingly, the Appellant maintains that Boucher does not anticipate Appellant's claim 1. Namely, Boucher does not disclose or suggest "processor operable to process a plurality of different types of network traffic, wherein **each** of said plurality **of <u>different types of network traffic corresponds to a different network protocol</u>**," as recited in the Appellant's claim 1.

II-C. Dependent Claims 3 and 19

The Appellant stands by the arguments made in the corresponding section of the Brief on Appeal. The Examiner's Answer (page 19) states the argument as follows:

> "For claims 3 and 19, appellant has argued that prior art Boucher **does not teach two or more of common Ethernet traffic**, offload traffic, storage traffic, interprocess communication traffic (IPC) traffic, management traffic and RDMA traffic.
>
> It is respectfully submitted that Boucher does teach the limitation (col. 10 lines 32-37, Ethernet traffic, col. 8 lines 3-12, col. 13 lines 42-67, SMB over TCP/IP or storage traffic directly forwarded to storage destination bypassing session, transport, network and datalink layer

> processing, col. 7 lines 37-45, offload traffics such as TCP/IP, SPX/IPX)."

Boucher discloses moving large messages via the fast path or slow path, such as file transfer to the final destination utilizing SMB (server message block) over TCP/IP, which is a type of offload traffic. For smaller messages, Boucher discloses packet messages sent under TCP/IP or SPX/IPX (i.e., the Netware version of TCP/IP protocol), which is an offload traffic. In other words, Boucher's SMB over TCP/IP and the TCP/IP or SPX/IPX protocols are different implementations of the offload traffic, which is a single common Ethernet traffic. In this regard, the Appellant maintains that Boucher still does not disclose or suggest "**<u>two or more</u> of common Ethernet traffic**, offload traffic, storage traffic, interprocess communication traffic (IPC) traffic, management traffic and RDMA traffic," as recited in Appellant's claims 3 and 19. Claims 3 and 19 are submitted to be allowable.

III-A. Dependent Claims 10 and 11

The Appellant stands by the arguments made in the corresponding section of the Brief on Appeal. The Examiner's Answer (pages 19-20) states the argument as follows:

> "For claims 10 and 11, appellant has argued that prior art Boucher and Kistler do not teach "server management functions".
>
> The examiner submits that the claims only recite "a server management agent" coupled to a keyboard or video or mouse

> service, without reciting any management functions. Therefore, any keyboard or video or mouse service processing agent can be read as the claimed "server management agent," such as **keyboard and mouse connected to an emulator that is coupled to a NIC** (Kistler, fig. 3, [0026], emulator 324 has serial hardware interface, connecting to keyboard/video/mouse and NIC)."

Appellant's claim 10 recites "a server management agent coupled to the processor". In other words, Appellant's "server management agent" has to be a physical hardware in order to be coupled to the "processor". However, the Examiner seems to equate Kistler's emulator 324, which is a software application (*see* Kistler at ¶0025) running within the operating system 322, to Appellant's "server management agent". In this regard, the Appellant maintains that Kistler does not disclose or suggest "a server management agent coupled to the processor," as recited in claim 10.

Even though Kistler discloses that the keyboard/video/mouse connects to the emulator via a serial hardware interface, it does not change the fact that the emulator is still a software application, and the serial hardware interface is a mere physical connector, which enables the software codes be executed by the processor to be communicated to the keyboard/video/mouse. Therefore, the Appellant maintains that Kistler, likewise, does not disclose or suggest "the server management agent is coupled to a keyboard and/or video and/or mouse service," as recited in claim 11. Claims 10 and 11 are submitted to be allowable.

IV-A. Dependent Claim 14

The Appellant stands by the arguments made in the corresponding section of the Brief on Appeal. The Examiner's Answer (page 20) states the argument as follows:

> "… appellant has argued that prior art Boucher and Microsoft do not teach "the unified driver is coupled to a software TCP processor and a socket service switch."
>
> The examiner submits appellant's mapping of the claimed subject matter is incorrect. From fig. 1, **Microsoft clearly teaches a unified driver (NDIS driver) coupled to a software TCP processor (TCP/IP socket provider)** and a socket service switch (Switch connected to socket application) similar to fig. 2 of the application (driver 450, software TCP/IP processor 460, switch 470 and services 480)."

The Examiner's above argument is still deficient. As shown in Microsoft's Fig. 1, Microsoft's NDIS driver (the alleged "unified driver") by-passes the TCP/IP sockets, a feature disclosed by Microsoft's SAN and WSD Architecture Model (see page 4). In this regard, Microsoft at least does not disclose or suggest "**the unified driver is coupled to a software TCP processor** and a socket service switch," as recited in Appellant's claim 14.

IV-D. The Rejection of Claim 21 Using Official Notice

The Appellant stands by the arguments made in the corresponding section of the Brief on Appeal. The Examiner's Answer (pages 20-21) states the argument as follows:

> "For claim 21, appellant has argued that prior art Boucher and what was known in the art (using Official Notice or ON) do not teach "time

> division multiplexing (TDM) to determine which of the different types of **network traffic access the software services** via the single data path."
>
> The examiner respectfully disagrees. Boucher teaches assessing software services via a single data path (fig. 6, single data path 155 processes traffics using fast-path processing and slow-path processing or at least two different traffics as shown in claim 1, traffics accessing source/destination or software services via path 155). It was known in the art that **TDM is a form of multiplexing in which transmission time is broken into segments, each of which carries one segment of one signal (Microsoft Computer Dictionary (fifth edition))**. Therefore, it would have been obvious for one skilled in the art at the time of the invention to combine the teachings of Boucher and what is well known in the art to determine which of the different types of network traffic access the software services via the single data path as taught by Boucher **by allotting multiple traffic segments of different types over one channel in different time slots using TDM** as known in the art in order to minimize cost and complexity of building multiple channels or paths unnecessarily."

In effect, the Examiner seems to equate "a signal" to "software services". The Appellant respectfully disagrees, and points out that "software services" refers to a specific application being performed over the time slot, while "a signal" is general without specificity. In this regard, the Examiner's Official Notice argument is still deficient without articulating factual or technical support. The Appellant maintains that the claimed TDM is **for <u>accessing software services</u>** via the single channel, and **<u>not</u> for transfer of signals or bit streams**, as alleged by the Examiner. Therefore, the Applicant maintains that TDM is not well known for "**<u>accessing software services</u>** via the single channel," as recited in Applicant's claim 21.

V-A. The Rejection of Claim 22

The Appellant stands by the arguments made in the corresponding section of the Brief on Appeal. The Examiner's Answer (pages 21) states the argument as follows:

> "For claim 22, appellant has argued that prior art Boucher and Yang do not teach "dynamically allocating fixed resources between among the different types of network traffic" because Yang's dynamic scheduling of data packets pertain to the physical L2 level only.
>
> This argument is vague as to what L2 level has to do with the claimed subject matter and there is no support for layer 2 in the argument. The rejection is maintained."

The Examiner seems to have misconstrued Appellant's claim limitations in claim 22. Specifically, Appellant's claim 22 recites "dynamically allocating fixed resources among the different types of network traffic (i.e., accessing software services via the single data path)". In other words, the fixed resources refer to accessing which type of software services for the different network traffic types. Yang, however, (*see* Yang, [0015-0018]) refers the resources to bandwidth allocation, which is unrelated to Appellant's software services access allocation. Based on the foregoing rationale, the Appellant maintains that Yang is not a combinable reference with Boucher, and Appellant's claim 22 is submitted to be allowable.

The Appellant reserves the right to argue additional reasons beyond those set forth above to support the allowability of claims 1-31.

CONCLUSION

For at least the foregoing reasons, the Appellant submits that claims 1-31 are in condition of allowance. Reversal of the Examiner's rejection and issuance of a patent on the application are therefore requested.

The Commissioner is hereby authorized to charge any additional fees or credit any overpayment to the deposit account of McAndrews, Held & Malloy, Ltd., Account No. 13-0017.

A Notice of Allowability is courteously solicited.

Respectfully submitted,

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